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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/607,269	06/27/2003	Isamu Tsumori	1403-0252P	4725

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BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER

MAKI, STEVEN D

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 09/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/607,269

Applicant(s)

TSUMORI ET AL.

Examiner

Steven D. Maki

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 4, 5 and 8-10 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1, 4-5 and 8-10 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

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- 1) The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

- 2) Claims 4 and 8-10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In claims 4 and 8-10, the subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention is the *combination* of (1) the subject matter of extruding a rubber composition into a tube, forming a sheet by cutting one point in the sidewall of the tube shaped rubber sheet in the extrusion direction, cutting the sheet parallel to the extrusion direction, rotating each piece of the rubber sheet 90 degrees and laminating *and* (2) the subject matter of "said sheet has a complex elastic modulus E_{α} in the extrusion direction and a complex elastic modulus E_{β} in a 90° direction from the extrusion direction, such that if said rubber composition is made into 2 mm sheets with a roller" (emphasis added) with the equation being fulfilled.

The original disclosure describes a **first process** of forming a tread in which a roller is used to form a rubber composition into a sheet (figure 2) and a **second process** of forming a tread in which a rubber composition is formed into a tube shape (figures 3b, 4, 5). *These processes are mutually exclusive.* The original disclosure fails

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to describe how the roller embodiment (figure 2) and the tube shaped embodiment (figure 4) are used together in a process of preparing a tread satisfying the equation described at line 15 of claim 4. It is emphasized that the fiber orientation in figure 2 roller embodiment is in the extrusion direction B whereas the fibers are oriented perpendicular to the extrusion direction B in tube shaped embodiment (figure 4). The description of claim 4 is found at page 5 line 15 to page 6 line 4 of the specification. However, this description provides no guidance as to how the roller and the equation of the roller embodiment (figure 2) are to be employed in the tube shaped embodiment (figure 4).

With respect to "such that if" (and assuming that the claimed equation but not the rolling is incorporated into the tube embodiment), the original disclosure fails to describe and thereby fails to enable how to apply the claimed equation to the tube embodiment. It is emphasized that the original disclosure describes E_{α} with reference to the roller embodiment as being for a complex elastic modulus in the extrusion direction wherein the fibers are oriented in the extrusion direction instead of perpendicular to the extrusion direction.

With respect to the 112 first paragraph rejection, applicant comments that claim 4 has been amended so as to conform with a traditional method-type patent claim format. In response, the examiner comments that the first paragraph issue was not whether claim 4 incorrectly includes positive process steps when referring to the complex elastic properties of the tread and sheet. Instead, the issue is how an equation for one embodiment (the roller embodiment) is applied to a different embodiment (the tube

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embodiment) when the complex elastic modulus $E\alpha$ in these two embodiments are completely different.

3) The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4) Claims 1, 4-5 and 8-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 and 4 are indefinite because (1) the preamble of claim 1 indicates that the process prepares a studless tire whereas the body of claim 1 indicates that a sheet is prepared and (2) the preamble of claim 4 indicates that the process prepares a studless tire whereas the body of claim 4 indicates that a tread is prepared. In view of the amendment to the preamble of claims 1 and 4, it is suggested to appropriately amend claims 1 and 4 to make it clear that the claimed process makes a tire instead of merely a sheet / tread. For example, in claim 1 it is suggested to make the following change: after "together" on the last line, insert --to form a tread having a thickness of at most 20 mm; and forming a studless tire having said tread.--

In claim 5, "studless tire by the process of claim 1" is ambiguous. It is suggested to change "studless tire by the process of claim 1" to --studless tire obtained by the process of claim 1--.

Claim 9 is indefinite because it appears to remove limitations of claim 1. For example, it is unclear if dependent claim 9 is limited to fibers as required by claim 1. If so, then it is unclear why claim 9 recites "short fiber or plate-like material".

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In claim 4 and claim 9 (dependent on claim 1), the scope and meaning of "said sheet" has a complex elastic modulus $E\alpha$ in the extrusion direction and a complex elastic modulus $E\beta$ in a 90° direction from the extrusion direction, such that if said rubber composition is made into 2 mm sheets with a roller" (emphasis added) is ambiguous because said sheet in claims 1 and 4 is made using steps of extrusion in a tube shape and cutting instead of using a roller. In short, it is unclear how the claimed equation affects the scope of the claimed "said sheet" which in claims 1 and 4 is made using steps of extrusion in a tube shape and cutting instead of using a roller.

5) Claims 9 and 10 objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claims 9 and 10 broaden claim 1 by removing limitations therefrom (e.g. not requiring short fibers).

6) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Japan 718 (tire)

7) **Claims 5 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 718 (JP 2001-138718) in view of Japan 034 (JP 60-219034) .**

Japan 718 and Japan 034 are applied as in paragraph 7 of the last office action (paragraph 7 of the last office action is incorporated herein by reference).

With respect to product by process claims 5 and 8-10, applicant argues that the references fail to teach "the rubber sheet is formed by laminating pieces obtained by cutting a tube". This argument is not persuasive since laminated pieces obtained from a sheet made by cutting a tube *in contrast to* laminated pieces obtained from a sheet made using a calendar roll fails to require tire structure not suggested by Japan 718 as modified by the secondary art. See MPEP 2113. It is emphasized that each of the sheet made by cutting a tube and the sheet made using a calendar roll have the same characteristic - oriented short fibers.

Applicant argues that the references fail to teach the complex elastic modulus properties recited in claim 1 or claim 4. The examiner disagrees. Japan 718 suggests the claimed complex elastic modulus properties since Japan 718 teaches forming the tread, which comprises laminated cut pieces, such that 90% or more of the fibers are oriented in the tread thickness direction (at an angle of 40-90 degrees to the tread side) so that the complex elastic modulus E_1 in the thickness direction is increased. Increasing the amount of fibers oriented in the thickness direction (which corresponds to the amount of fibers oriented in the extrusion direction) results in the ratio E_b/E_a being greater than 1.0. It is noted that when $E_1/E_a = 1$, then the complex modulus in the tread thickness direction equals the complex modulus in the extrusion direction. It is also noted that as more of the fibers are oriented in the extrusion direction, the complex

modulus $E\alpha$ in the extrusion direction increases in comparison with the complex modulus $E\beta$ in the direction of 90 degree to the extrusion direction.

Although not clearly claimed (see 112 second paragraph rejection as to the preamble), it would have been obvious to form the tread comprising the fiber reinforced layer having fibers oriented in the thickness direction such that the thickness of the layer is at most 20 mm since (1) Japan 718 teaches the tire having the tread with the oriented fibers is for a passenger car and (2) it is taken as well known / conventional per se to form a tread / cap tread of a tire for a passenger car with a thickness of at most 20 mm.

extruding rubber composition in tube shape

8) **Claims 1, 4-5 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goettler et al (US 056591) in view of Tajima et al (US 5429487), Japan 718 and Japan 034.**

Goettler et al, Tajima et al, Japan 718 and Japan 034 are applied as in paragraphs 12 and 13 of the last office action (paragraphs 12 and 13 of the last office action are incorporated herein by reference).

Applicant argues that the references fail to suggest a process for preparing a studless tire having a tread wherein the tread is formed by laminating pieces obtained by cutting a tube. This argument is not persuasive since Goettler et al teaches obtaining a sheet having oriented fibers for pneumatic tires by extruding a rubber composition containing fibers in tube shape and cutting a sheet from the tube (see col. 7 lines 47-63), Japan 034 teaches laminating rotated pieces obtained from a rubber sheet to form a fiber reinforced layer having fibers oriented in the thickness direction and

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Japan 718 suggests using a fiber reinforced layer comprising laminated pieces wherein the fibers are oriented in the thickness direction. In short, Goettler et al teaches the step of cutting a tube, Japan 034 teaches the step of rotating and Japan 718 teaches the tire tread comprising oriented fibers. **In view of Goettler et al's express suggestion that the fiber oriented sheet cut from the tube may be used in the manufacture of tires (col. 7 lines 47-63), there is ample suggestion to use Goettler et al's fiber oriented sheet obtained by cutting a tube in the tire tread of Japan 718, which contains oriented fibers.** With respect to laminating, both Japan 034 and Japan 718 suggest laminating pieces cut from a fiber oriented sheet to form a fiber reinforced layer having fibers oriented in the thickness direction wherein Japan 034 provides the suggestion for using a *rotating step* in the laminating process.

Applicant argues that the references fail to teach a rubber sheet satisfying the claimed complex elastic modulus properties. The examiner disagrees. The claimed complex elastic modulus properties are descriptive of the fibers being oriented in one direction. Each of the applied references teach this subject matter.

Although not clearly claimed (see 112 second paragraph rejection as to the preamble), it would have been obvious to form the tread comprising the fiber reinforced layer having fibers oriented in the thickness direction such that the thickness of the layer is at most 20 mm since (1) Japan 718 teaches the tire having the tread with the oriented fibers is for a passenger car and (2) it is taken as well known / conventional per se to form a tread / cap tread of a tire for a passenger car with a thickness of at most 20 mm.

As to claims 9 and 10, see comments on claims 1 and 4.

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Remarks

9) Applicant's arguments filed 6-14-05 have been fully considered but they are not persuasive.

Applicant comments that the present invention provides for advantageous properties. The results in the specification have been considered but are not persuasive of non-obviousness because (1) the claimed invention has not been compared to the closest prior art (Japan 718) and (2) Japan 718 teaches that 90% or more of the short fibers are oriented at an angle of 40-90 degrees to the tread side 2 to increase the tire radial complex modulus E1 (see paragraph 23 of the machine translation). It is noted that Japan 718 teaches away from comparative example 5 since Japan 718 teaches orienting the fibers in the thickness direction instead of the circumferential direction. With respect to comparative example 8, Goettler et al and Japan 718 suggest $E_b/E_a > 1$ instead of 0.68.

10) No claim is allowed.

11) Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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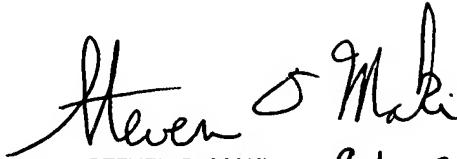
shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is (571) 272-1221. The examiner can normally be reached on Mon. - Fri. 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Steven D. Maki
September 1, 2005


STEVEN D. MAKI
PRIMARY EXAMINER
GROUP 1300
Av 1733
9-1-05